TWENTIETH

ANNUAL REPORT

OF THE

TRUSTEES

OF THE

PHILADELPHIA GAS WORKS,

TO THE

SELECT AND COMMON COUNCILS OF THE
CITY OF PHILADELPHIA.

JANUARY 25, 1855.

PHILADELPHIA:
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REPORT.

TO THE SELECT AND COMMON COUNCILS:

THE consolidation of the City of Philadelphia, renders it proper that the Trustees of the Philadelphia Gas Works should present, in their usual Annual Report, a brief history of the establishment of the Gas Works, and some references to their rapid extension and profitableness.

They might enlarge, too, upon the great benefits that bave been conferred on the community, by the erection of the works, but this part of the subject is so well understood, that any reference to it will be but incidental.

As early as the year 1815, the project of lighting the City with Gas, claimed the attention of several enterprising and intelligent citizens.

Among these were the late Dr. Bollman and the late James McMurtrie, Esq., the latter of whom, after a conference with Dr. Bollman, then but recently returned from Europe, and familiar with what had been there attained in Chemistry applied to the Arts, presented a communication to Councils on the subject.

This communication was finally referred to a Committee, but no definite action on it appears to have been had.

It is worthy of note, however, and rather remarkable, that the project of Messrs. Bollman and McMurtrie contemplated the use of wood as the gas making mate-

rial, and now at a date forty years later, and aided by the more recent developements of chemical science, that material promises to be extensively used in the manufacture, and in some locations, and under some circumstances, with more profitable results than Coal or other substances.

A few years later, 1817 to 1820, the Masonic Hall and Museum were lighted with resin gas, but not with sufficient success and economy to lead public opinion to the construction of works of the capacity required for supplying a large and general consumption.

Prior to 1833, several parties made propositions to establish gas works, and to supply the public lighting either gratuitously, or on what were then deemed by the proposers, very liberal terms, but these were all wisely rejected by Councils, and the matter held in abeyance a few years longer.

In 1833, the subject was taken in hand with intelligence and earnestness, and the Report of the Committee, consisting of Messrs. Joshua Lippincott, Samuel V. Merrick, Manuel Eyre, Dr. Robert M. Huston, John Gilder, and John Price Wetherill, gave one of the clearest and most just views of the importance and the economy and benefits of the measure, that had up to that time been made public. They estimated the cost of works sufficient to supply 315,000 cubic feet of gas daily, and a system of distributing pipes about 100 miles in extent, at $687,000. The result they then arrived at has been signally confirmed by the actual outlays upon the City Gas Works. But the public mind, even under this strong exposition, was not yet prepared for the erection of Works at the cost of the City, and after considerable discussion, both public and private, it was deemed best by the Councils, to appoint an agent to

visit Europe, and to make a thorough examination of the best establishments there, and otherwise to obtain as full information as might be practicable in the process of manufacture, and the cost and other details that might serve for intelligent legislation here.

Mr. Samuel V. Merrick was selected as the agent, and on his return made a report which fully sustained the views taken by the Committee above referred to, of which he had been one of the most active members, and tended greatly to secure for the gas project, a large share of public confidence and favour.

What had been accomplished abroad was clearly explained, and what seemed to be required here, appropriately presented. But still there were many of influence and character, who feared the trial of the experiment, and the Ordinance reported by the appropriate Standing Committee failed to obtain the concurrence of Councils.

This brings the history rapidly down to the latter part of the year 1834. The earnest friends of the measure were not disheartened by this new defeat and postponement of their hopes.

On the 12th of February, 1835, a resolution was offered in the Common Council, by the present President of the Board of Trustees, for the appointment of a Committee, "with instruction to report a bill, if they shall deem the introduction of gas expedient, which shall effectually guard the City from any increase of taxation, and from any eventual loss, by adopting the project."

The resolution was adopted by Councils, and Messrs. F. Fraley, H. J. Williams, Dr. R. M. Huston, and T. Lancaster, of the Common Council; and Messrs. W. H. Keating, Richard Price, John Wiegand, and Joshua

Lippincott, of the Select Council, were appointed the Committee.

On the 9th of March, 1835, the Chairman of the Committee, Mr. Fraley, made report with an Ordinance attached, and on the 21st day of March, 1835, the Ordinance as so reported, with some slight modifications, was adopted and passed by Councils. Its essential features were a capital stock of $125,000, to be subscribed for and paid in by citizens who agreed in consideration of the profits, to take all the risk of the undertaking: the whole of the investment, management, and other details to be confided to a Board of Trustees, to be elected by the Select and Common Councils: the supply of gas to the public lamps at half the price charged to private customers: and the right of the city at any time to take possession of the Works, by giving the Stockholders certificates of six per cent. City Loan, redeemable in twenty years, in exchange for their certificates of Stock. A Board of Trustees consisting of Messrs. Benjamin W. Richards, John R. Latimer, Alexander Dallas Bache, William H. Keating, John Price Wetherell, Henry M. Zollickoffer, John Farr, Dr. Robert M. Huston, Fred'k Fraley, Ephraim Haines, Matthias W. Baldwin, and Thomas Cave, were elected on the 28th day of March, 1835. The subscription lists for the stock were opened immediately afterwards, and so much had the public interest been aroused, that the subscriptions largely exceeded the authorized capital; and arrangements were required, to distribute the stock among the subscribers by lot. The Trustees appointed Mr. Samuel V. Merrick the Engineer of the Works, and so rapidly and successfully were they prosecuted that on the 8th of February, 1836, they were put in operation. The public were

literally taken by surprise, as only two premises were at that time prepared for the introduction of gas, and the registry of applicants exhibited only 19 private, and 46 public burners. By the close of the year the number of burners stood 2800 private, and 165 public, and the daily consumption had reached 42,000 cubic feet.

The success of the experiment was now complete, the friends of the measure had redeemed every pledge they had given, and henceforth there was no lack of public and private confidence. On the 8th of February, 1837, Mr. Merrick who was then very actively engaged in other pursuits, tendered his resignation as Engineer, which was reluctantly accepted by the Trustees, and Mr. John C. Cresson, who, in August, 1836, was appointed Superintendent of the Works, was then elected to the place, and has continued to fill it with a zeal, fidelity, and skill, that has made the Philadelphia Gas Works a type for nearly all others in the United States, and in success, and profitableness probably not equalled elsewhere.

On the 22nd of December, 1836, it was determined to adopt the policy of extending and enlarging the Works by Loans, and that policy has been continued up to the present time. Prior to the year 1841, the Ordinances for such Loans contained provisions: that if the Works were taken possession of by Councils before the maturity of the Loans, and the Stock converted into City debt, the Stockholders should be entitled to all the accumulated profits.

July 1st, 1841, the City authorities decided to settle with the Stockholders on the terms of the original contract, as modified and enlarged by the Ordinances for the Loans, and a final settlement was made, under which the Stockholders received $125,000 of 6 per

cent. and $48,000 of 5 per cent. City Loans, in lieu of their original capital; and, in addition to this, they had received all the net profits of the Works up to February 1st, 1841.

In all the legislation subsequent to March, 1835, care was taken to obtain the consent of the Stockholders to every change or modification of the original compact, and the Stockholders always responded liberally and cheerfully to the arrangements proposed for the extension of the Works. The legislation of 1841 adopted the principle which the founders of the Gas Works had urged and secured in the original plan.

This was, first, a management that would be responsible to, but not subject to the City legislature: and second, such a permanency in the management, as would secure the Works from the effect of sudden political changes in the Councils.

It was then declared, that until the Loans authorized for the purposes of the Gas Works were fully discharged, the price of gas should not be reduced below a standard that would produce at least eight per cent. per annum, on the whole cost of the Works; nor then, unless the pipes for distribution had been extended throughout the City limits: as additional securities, the faith of the City was pledged, that the management should continue in a Board of Trustees, elected and constituted as theretofore; and that no part of any moneys received for the products of the Works, should at any time be paid into the City Treasury, but be held by the Trustees for the purpose of carrying on the business, and paying the interest on and principal of the Gas Loans.

By the Ordinance of May, 1841, all the net profits were appropriated to the Sinking Fund, and were so

applied and accumulated until 1844, when the Councils deemed it expedient to have the price of Gas reduced.

This was finally effected in that year by the passing of an Ordinance, to which the concurrence of the Loan holders was obtained, which authorized a reduction in price, whenever the net profits should exceed eight per cent. for the interest and sinking fund, and the additional sum of twenty thousand dollars per annum, for extensions and extraordinary repairs and renewals. By subsequent legislation the amount of the loans was increased, as the additional calls of customers rendered rapid extensions proper; and while ample provision was made for the payment of all these loans at maturity, the reduction in price was continued until it was fixed at $2 per thousand cubic feet to the private customers, and at about $1 per thousand cubic feet for the public lamps. By the year 1850 the demand was so great, that it became necessary to look for a location on which additional works might be erected, and this ultimately led to the purchase of the large and valuable estate at Point Breeze, on the Schuylkill, and to the erection of a manufacturing establishment there which would cover the existing exigency, and lead in process of time by the completion of works of suitable capacity, to the removal of the first set of works from their original location.

The first section of the new works was put in successful operation on the 13th day of December, 1854, in the presence of the Select and Common Councils, and the plans connected with them will doubtless now be carried out with such rapidity as the public interests may justify, and without too hasty a sacrifice of the old Works before their deterioration would call for expensive renewals and repairs. This will, probably, occupy

a period of several years in duration, and will make the transfer without inconvenience, or considerable pecuniary loss. In the Report of the Chief Engineer, the Councils will find the gratifying announcement, that the whole area of our extended and Consolidated City can be supplied without difficulty from the site of the new Works, and there is, therefore, every reason demanded by true economy, and convenience, for so arranging the Gas Department, that this great and beneficial end may be accomplished. The close of 1836 found us with an annual product of 6,481,300 cubic feet, and supplying an aggregate of 2965 lights. The close of 1854 exhibits the annual product at 282,224,000, and supplying an aggregate of upwards of 200,000 lights. The capital invested in the Works, January 1st, 1837, was $125,000, the capital now invested January 1st, 1855, is 1,782,591$\frac{31}{100}$. During a portion of this interval the late District of Spring Garden was supplied from the Works, but now the supply, large as it is, is limited to the "Old City," and the late Districts of Southwark, Moyamensing, and West Philadelphia.

We have thus brought our rapid sketch of the history of the Works to a close, and will proceed now with the usual statements of the business of the year. Shortly after the presentation of the last Annual Report it became evident to the Trustees, that the price demanded for materials and labor of all kinds would not enable them to realize from the manufacture and sale of gas and the other products of the Works, the sums which they were required, by the several Ordinances, to set apart for the payment of the interest on and the redemption of the Gas Loans. They reported accordingly to Councils, and asked such legislation as would

enable them to comply with the directions of those laws, by charging an additional price for gas. But the authority was not granted, and the result has been such as was anticipated. The gross profits of the year, as exhibited in the annual accounts, amounts to $105,729 $\frac{86}{100}$, while the interest and Sinking Fund demanded by Ordinances was $124,525, and no part of the annual sum of $30,000 for extensions of the Works, &c., has been realized from the expected profits. Should no material reduction take place in the price of labor and materials during the present year, a similar result will undoubtedly be experienced, and unless it be prevented by adequate and seasonable legislation, a serious injury will thereby be inflicted on the public faith.

While such a deficiency rested upon estimates, the postponement of legislation might be tolerated, but now that it has been demonstrated by the actual results of the business of the year, the scrupulous good faith of the city should be preserved by directing the Trustees to readjust both the public and private prices to the proper standard. To some extent prices may in a year or two fall back, and then the charge be again reduced to its present rate, or it may be, that the concentration of the whole of the manufacture at one point, and the increased economy in working, which will thereby be effected, and a continuance of the increase of consumption in the rapid ratio we have lately experienced, will, without such a fall, justify a return to existing prices.

All the details of the manufacturing and distributing operations of the year, are so fully given in the report made by the Chief Engineer to the Trustees, which is herewith submitted, that the Councils will readily understand the extent and importance of the Works.

As a large manufacturing and commercial establish-

ment, they claim a vast amount of scientific, mechanical, and commercial ability, and it is believed, that as they have been managed and worked by the Trustees and Engineer, they may challenge a comparison with any concern of equal magnitude and detail.

The money accounts which give the final results of the business, have been prepared with a special reference to the existing Ordinances, and they exhibit in minute detail all the receipts, expenditures, and profits, together with the general state of the affairs of the Gas Works on the first instant.

It will be manifest from an examination of the accounts, that there is an immediate necessity for authority to raise money for the erection of additional Works, for the extension of the distribution of gas, and for working capital.

In consequence of the great inadequacy of the authorized capital for all these purposes, the Board was obliged, in September last, to close the Books for the registry of new customers, unless the applicant would agree to furnish the sum required to pay for the service pipe and meter.

The inability of some of our fellow citizens to rent or use their property without the introduction of gas, constrained them to make such payments in order to secure light. The money has been received from them under no positive pledge to refund it, but with the assurance that the Trustees would respectfully urge upon Councils the propriety of not only authorizing the new Capital that may be required to reimburse such parties, but an amount sufficiently ample for the proper increase of the Works in all its branches, and a working capital that will render it unnecessary to purchase materials or make contracts on credit.

By the want of such a provision, and the postponement of the payment of the bills against the city for gas supplied to the public lamps, &c., very serious embarrassments will naturally follow from every increase of current business; as the large stock of coals and other materials required to be kept constantly on hand, and the quantity of gas supplied to customers, and always outstanding as a credit to them until quarter-day, usually represents a sum exceeding two hundred thousand dollars. To these subjects, therefore, the Trustees do most earnestly and respectfully invite the early attention of the Councils.

By the recent decision of the Supreme Court, rendered on the application of certain of the Loan holders of the Gas Works, it has been settled that any change in the organization, duties, and powers of the Trustees must first have the consent of such Loan holders.

The Trustees have every reason to believe that the Loan holders will now, as they have always heretofore done, consent to such changes in the existing contracts with them as will permit the organization of a Gas Department of sufficient powers for the supply of the whole area of the Consolidated City, provided, it be constituted in such way as not to impair the security they now hold. And it will afford the Trustees great pleasure to aid the City authorities in obtaining such consent to any Ordinance which may secure both those great objects.

BY ORDER OF THE TRUSTEES,

F. FRALEY, *President.*

Office of the Philadelphia Gas Works,
January 25th, 1855.

Attest,

WILLIAM FENNELL, *Register.*

THE ENGINEER'S REPORT.

TO THE TRUSTEES OF THE PHILADELPHIA GAS WORKS:

The undersigned has the honor to present his Nineteenth Annual Report of the operations of the Works committed to his management.

The quantity of Gas manufactured in the year 1854, is two hundred and eighty-two millions, two hundred and twenty-four thousand cubic feet, being thirty-two millions seven hundred and ninty-seven thousand feet more than was produced in the previous year, and making the whole amount obtained since the commencement of the Works, nineteen hundred and forty-six millions five hundred and sixty-eight thousand cubic feet.

The different sections of the City supplied with Gas from these Works have received it in the following proportions:

	CUBIC FEET.
Southwark, - - - - - - -	14,989,200
Moyamensing, - - - - - -	8,273,800
West Philadelphia, - - - - - -	6,501,780
Old City, including gas used at offices and Works, and amount lost by leakage and making connections, - - - - - - -	252,459,220
	282,224,000

The greatest production of Gas in twenty-four hours was one million three hundred and nineteen thousand feet, on the twenty-third of December; and the greatest amount consumed was one million three hundred and sixty-one thousand feet, on the night of the sixteenth of the same month.

The materials used in the manufacture of Gas are exhibited in the following statement:

Coal in store January 1st, 1854, -	310,464	Bushels.
" bought in 1854, -	934,075	"
	1,244,539	"
		"
Coal carbonized in 1854, - -	919,550	"
" in store January 1st, 1855, -	324,989	"
	1,244,539	"
Coke on hand January 1st, 1854, -	5,000	"
" made in 1854, -	1,099,519	"
	1,104,519	"
Coke used under retorts, - -	595,637	"
" " in Offices and Yard, and at New Works, - -	32,000	"
" sold in 1854, - - - -	473,382	"
" on hand January, 1st, 1855, -	3,500	"
	1,104,519	"
Rosin used, - - - - -	990,000	Pounds.
Wood used - - - - -	50	Cords.
Lime used in purifiers, - - -	78,374	Bushels.

In the department of distribution, there has been less extension than for several years past, owing in great measure to the exhaustion of the funds at the disposal of the trust for this purpose, and the consequent necessity of limiting the introduction of service pipes during the latter half of the year to cases in which the applicants were willing to bear the expense.

The number of meters set, and service pipes laid in new places, is nine hundred and thirty-nine, making the whole number in use fourteen thousand and thirteen.

Two thousand eight hundred and eighty-four new applications for gas have been added to the registry, and one thousand nine hundred and sixty-nine removals and discontinuances deducted from it; leaving the present number of thirteen thousand nine hundred and four consumers now on the books.

The number of lights added are eighteen thousand one hundred and twenty-seven private, and twenty-seven public, in the old city; and three thousand eight hundred and sixty private, and two hundred and fifty-one public, in Southwark, Moyamensing, and West Philadelphia; the aggregate number now supplied by the works being two hundred and twenty-two thousand nine hundred and eighty-nine.

There have been laid but two thousand five hundred and thirty-two feet of main pipe in streets during the past year, making the total length in the old city, six hundred and twenty-nine thousand seven hundred and sixty-five feet, equal to one hundred and nineteen and a quarter miles.

In Moyamensing there are ninety-five thousand feet of main pipe, and six hundred and eighty-eight services and meters; forty-eight hundred and forty-four private, and one hundred and seventy-eight public lights.

In West Philadelphia there are eighty-one thousand nine hundred and eight feet of main pipe, and four hundred and eleven services and meters, five thousand one hundred and eighty private, and three hundred and eleven public lights.

In the late Borough of Frankford, now Twenty-third Ward, there have been about thirty-four thousand feet of main pipe laid, and one hundred and eighty-six services and meters put in, and seven hundred and fifty private, and forty-six public lights, supplied with gas obtained from the Northern Liberties Works.

At the new Works, Point Breeze, the fires were lighted in the retort houses, in the month of November, for the purpose of drying the brick-work of the benches, and so preparing them for use, without danger of injury from sudden heating up.

On the thirteenth of December, regular gas making operations were commenced, and have been continued since that time, with entirely satisfactory results, as respects their productiveness, but with much embarrassment and expense from the want of resi-

dences for the workmen sufficiently convenient to the Works. The increased facility of manufacturing, and consequent increased production from the same amount of materials and labour that were anticipated, from the improved arrangement and construction of these Works, have been fully realized in their practical operation. The quantity of gas obtained from a ton of coal, is about sixteen per cent. greater than is obtained from the same kind of coal at the old Works; and each retort while it requires no more fuel to heat it, and no more men to work it, yields about twenty per cent. more gas. These advantages are owing partly to improvements in the form and setting of the retorts, and partly to the use of the exhausting engine; which by relieving the retorts from back pressure, diminishes the loss arising from the deposit of carbonaceous vapours, which not only produces serious loss of the most richly illuminating parts of the gas, but also cause the more rapid destruction of the retorts.

From the experience had up to this time in the operations of these Works, I feel justified in expressing the opinion, that if so much of the ultimate plan were completed as would suffice for the present supply of Gas to the City; and the proposed arrangements for receiving and storing coals and accommodating the workmen, were carried into effect, there would result a saving in the cost of gas to our citizens of not less than fifty thousand dollars a year; which saving would be increased every year in the same ratio, as the annual sales of gas increased. In consequence of the disaster that occurred to the large gasholder before it was completed, it has been necessary to pass the gas made by the new Works, directly into the old gasholders, at the distance of three and a quarter miles—in doing which no difficulty has been experienced, nor need any be apprehended, while the quantity to be passed continues to be small in proportion to the calibre of the connecting main. When the workmen engaged in making the repairs in the damaged gasholder came to take out the broken parts, they found the materials and workmanship in some places so bad, as to make its breaking down almost inevitable, in time, without the intervention of the storm to which its occurrence was attributed. All these defective pieces have been taken out, and

are to be replaced with others of good material and workmanship. Samples of them are carefully preserved as proofs of the cause of the accident, in the event of legal proceedings being instituted in relation to it.

As nearly as can be estimated, before the work is entirely finished, the expense of repairing the damage to the gasholder will be about six thousand dollars, to which will be added the cost of replacing the defective pieces with others of good quality, amounting, probably, to fifteen hundred dollars.

With the exception of this unfortunate occurrence, the entire work has been put in operation, without the slightest difficulty or untoward incident.

As no official accouut of the general plan of these Works has yet been published, the time when the first section has just been put in operation, forms a suitable occasion for describing both the entire design and the parts now constructed. Our experience shows, that in a manufacture using large quantities of heavy materials, there is much economy in making arrangements that shall require the least possible handling of such materials, and that their necessary movements shall be effected by mechanical and not manual power.

Keeping these principles in view, the grounds have been laid out so that the places of storage of coals and other bulky materials shall be adjacent to the points of reception, and also as near the retorts as is consistent with sufficient allowance of storage room.

A space directly east of the wharves is reserved for the erection of store sheds, two hundred and fifty by six hundred feet, giving room for the storage of over thirty thousand tons of coal.

Adjoining these on the east, the ultimate plan provides for four distinct retort houses, fifty-five feet in width, and of lengths varying to suit the shape of the grounds. The one now in use is two hundred and fifty feet long and fifty-six feet high, accommodating forty-eight beds of retorts, which may be either of three or five retorts each, as may from time to time be deemed preferable. Those now set are with three retorts; this number having thus

far given most economical results. This house will therefore admit of either one hundred and forty-four, or two hundred and forty retorts, as one or the other of these modes shall be adopted. The second retort house will be of the same length, and the third and fourth each more than twice as long; the capacity of the whole being sufficient for one thousand and eight retorts, in beds of three, or sixteen hundred and sixty retorts, if set five in a bed: being capable of supplying a maximum consumption of six millions feet a day in one case, and eight millions in the other. Large as this quantity seems to us now, there is good reason for supposing that the consumption of the consolidated City will exceed it in the lifetime of some of the present generation. As the work in the retort house has been found to be productive of much discomfort to the workmen in the summer season, unless provision is made for an ample supply of fresh air and rapid ventilation; these retort houses are planned in such way as to afford every desirable advantage in these respects. Instead of heavy piers of brick or stone, the front is formed of a light cast iron frame work in the form of gothic arches, which allows almost the entire side of the building to be thrown open for air, by the movement of rolling lattice blinds in the windows.

The great elevation of the roof, through the ridge of which are carried up separate draught flues from the retort beds, furnishes a column of heated air of sufficient height for very active ventilation, so as to protect the workmen most completely from the dingy fumes so profusely thrown out in drawing and charging the retorts. When the gas leaves the retort house to pass through the condensing and purifying apparatus, it is made to travel in a direction towards the gas-holder, and also towards the densely built parts of the city, where it is chiefly to be consumed; so that the pipes of conveyance may perform the two-fold office of connection, for the works and conduits from the point of production to that of use.

A set of large pneumatic pumps, technically termed an exhausting engine, takes the gas from the washers in such manner as to remove all pressure beyond that of the atmosphere from the hydraulic main, and forces it through the various resisting portions of the Works without subjecting the contents of the re-

torts to the compression which has been found so injurious both to the retorts and gas. In order to obtain greater economy in the use of lime, a double system of purification has been adopted; in which the gas is first made to pass through a series of wet lime cylinders with contrivances for its very minute subdivision into numerous small jets; thus bringing it into most effective contact with the liquid detergent.

It then enters the condensers composed of three collateral ranks of six inch pipes, there being eighteen pipes eighteen feet long in each rank. From these it passes through dry lime purifiers arranged in the usual manner around a central hydraulic valve. These are all placed in one building seventy-two feet long and fifty-two wide, suitably proportioned for their adjustment to each other. Still further east is the building for the station meters and clerks' offices, one hundred feet long by thirty feet in width. A meter of suitable size is to be provided for each section of the factory, so as to permit each to be worked independently, or in conjunction with the others. The meter now in use is intended for passing at regular work five hundred thousand feet per day, and can be worked up to twice that quantity if necessary; the inlet being sixteen inches diameter. The meter room will hold four more meters; two of the same size as this, and the others of a size smaller; it being intended to use the two largest now in use at the old Works. The gas holder into which the gas is next to pass, is of telescopic form, one hundred and sixty feet in diameter and ninety feet high, holding when full, one million eight hundred thousand cubic feet. It is guided by twelve pentagonal towers, each composed of an iron structure of appropriate architectural design, supported on a stone base also pentangular in form. The connecting girders are in form of cast iron balustrades with open quatrefoil panels. There are two inlet pipes, one of twenty inches, and the other of sixteen inches diameter. The connecting main to the gas holders on Market street, is three and a quarter miles long and twenty inches diameter.

It is laid along the Passyunk Road to Long Lane, and up the latter to Twentieth street, along which it passes to Market street, and thence to Twenty-second street, where it enters the large

gas-holder by a twenty inch inlet. There are connections between this main and the general system of street mains at two points, both guarded with slide valves; one at Twentieth and Spruce streets, with the twelve inch main in the latter; the other with a sixteen inch main in Twenty-second street, that leads into the Arch street sixteen inch main. Both these connections are kept shut off during the day, and opened as occasion requires at night. In transmitting the gas through this long conduit, from the Works to the gas-holder, no difficulty of any kind has been experienced, affording satisfactory proof that the proposed plan of supplying the whole city from a single large factory is entirely practicable, as well as economical. The expenditures for the construction of this first section of the Works have not quite exhausted the whole appropriation for them made by Councils in 1851, based upon my estimate in March of that year; but the outstanding contracts and bills yet to be paid will probably absorb the whole sum. Had not the unexpected difficulties in the foundation of the tank, and the accident to the gas-holder occurred, the cost of the section would have been several thousand dollars below the appropriation. Before dismissing this subject, it seems incumbent on me once more to advert to the necessity of some provision being made for the residence of workmen within convenient distance of the Works. As many residents of the neighborhood as have been found willing and competent have been employed; but as these have not sufficed, it is necessary to employ others who live so remote that much time and labor are consumed in going to and from their work. So long as no authority is given to the Trustees to build, and no assurance held out that individuals who might otherwise be disposed to build shall not be injured by future competition from the city authorities, this undesirable condition of things will probably continue; and, in the mean time, the city must suffer heavy loss, and be subjected to the chance of being left in darkness in the event of a heavy drifting snow, or other insuperable obstacle, preventing the men from reaching their work.

The inconvenience that was last year anticipated from the disturbed condition of the supplies of bituminous coals, have been

experienced to a considerable extent. Not only has the price increased most exorbitantly, but the quality has deteriorated in almost equal proportion.

From this cause the quantity yielded by the ton of coal has been considerably less than if coals of the usual quality had been obtained. At one period of the season the difficulty of getting coals, even of this inferior quality and high cost, became so great that there seemed just reason to fear that the supply would be insufficient to carry us through the winter. In order to avoid the disastrous results that must ensue upon a failure in this respect, quantities of other materials, such as rosin and wood, were bought, whenever they could be obtained at reasonable prices; and apparatus of a peculiar construction, designed to make these materials most available, were experimented with, in order to be prepared to use them to best advantage whenever their use should become necessary. On many previous occasions experiments tried with various vegetable substances have shown, that by their use in conjunction with coal, an increased product of gas was obtainable; but the trials were not carried sufficiently far to determine how much reliance could safely be placed on their use alone. Our first experiments of this series were made with an apparatus of foreign invention, a trial of which was authorized by the Trustees early in the year; which was put in operation and kept at work a sufficient time to ascertain that it was capable of yielding a very good product from different varieties of wood, but was subject to certain derangements of parts, which it was desirable to avoid, if possible.

On the suggestion of the Assistant Engineer of the Works, trial was next made of a retort invented by him, differing from any retort known here or abroad, which gave promise of avoiding the defects of the above mentioned apparatus, while giving equally good results in other respects. As the inventor was an officer in the service of the Trustees, it was deemed right to guard the Works from any risk of loss by the trial, by stipulating that they should be at no expense in case the results were unfavorable; and that, if the apparatus was successful, the Works should have all the profit resulting from its use, upon payment of the cost of

labor and materials required for its construction. On trial of many weeks continued use, its success was complete, yielding a gas of excellent quality, not only as cheap, but much cheaper than that made from coal.

It was therefore recommended that a number of the retorts should be set up, on condition that the Works should be subjected to no charge for the use of the patent right.

This being agreed to by the inventor, and authorized by the Board, ten retorts are now in course of erection and will very shortly be at work. As the manufacture of gas from wood, and its excellent illuminating quality has been witnessed by most of the Trustees, it is not necessary to enter into many details respecting it in this report; but it is proper to state as matter of official record, that a cord of ordinary fire wood of any of the varieties brought to our market, will furnish nearly twice as much illuminating material as is obtained from a ton of the best Pittsburg coal. That is to say, the former will yield nearly a double volume of gas that gives, when properly burned, an equal light foot for foot.

It is worthy of note that the great advantages likely to result from this invention, will have been attained at a comparatively small expense to the Works.

An expenditure of six hundred dollars, authorized by the Board, for investigating the merits of the foreign apparatus first named, was nearly sufficient for that purpose, the cost of the experiments exceeding the amount by only a few dollars, which are repaid by the value of the materials remaining on hand.

For the other apparatus the Works have been subjected to no expense except for the retorts and their connections; and these having been kept steadily at work have paid for themselves by their manufactured product, the same as other retorts used in the regular operations of the establishment. The gain that has already accrued to the Works from the mere control of this new process, by the ability it gave to resist a threatened farther advance in the price of coals, which must have been submitted to in the absence of such resource, amounts to more than four times the cost of the apparatus.

A considerable increase in the cost of gas has been produced in the last two years by the advance in the price of coals, iron and labor; the advance of the two first having been more than thirty-five per cent., and in the last about fifteen per cent.

From this cause it results that the cost of making gas, exclusive of interest on capital, rents, and pay of clerks and inspectors employed in the department of distribution and finance, but including all labor and materials used in the manufacture and in repairs of apparatus, has risen from ninety-eight cents per thousand feet to one dollar and twenty-five cents per thousand. The former being the cost in 1853, and the latter in 1854.

To the net cost of production should be added the expenses of rents, and clerks, and inspectors, amounting last year to about twelve and a half cents per thousand. Now, as the price paid for public lighting is twenty dollars a year for a lamp consuming over twenty thousand feet, it follows that there is an actual loss to the Works of fifteen thousand dollars upon the public lamps in the old city proper last year, without taking any thing into the account for interest on capital, or the appropriations to the sinking fund required by ordinance of Councils, which, if added in their proper proportions, would swell the loss to more than twice this amount.

In accordance with the several resolutions of Councils providing for the temporary supervision of the gas pipes and meters, and collection of bills in West Philadelphia, Moyamensing and Frankford, proper steps have been taken for the due preservation of the gas property and the collection of moneys due. All the property in West Philadelphia and Moyamensing having been confided to your Board, the collections from them have been passed into the hands of the Register of the Works, who is, by ordinance, the Treasurer of the Trustees.

But, as the care of the Frankford affairs was devolved upon the undersigned, the collections from that quarter have been certified to the Comptroller, and paid over to the City Treasurer. On investigation, the management of affairs connected with the distribution of gas appear to have been conducted, in West Philadelphia, with commendable accuracy and system; but those of

the other two districts do not seem to have been managed so carefully. Whenever the direct communication between the Trustees and these gas districts, thus temporarily authorized, shall be by law made permanent, the intervening station meters, that now impede the supply of gas, may be removed, and the gas consumers much benefitted by the change.

Appended are the customary tabular statements, showing the progress and condition of the Works in every year since their foundation, and other statistical matters deemed worthy of permanent record.

Very respectfully,

JOHN C. CRESSON,

Engineer.

CASH ACCOUNT.

DR.

Balance on hand, January 1st, 1854, - - -	$ 15,089 83
Receipts in 1854.	
For Temporary Loans, - - - -	135,000 00
Extra Service Pipes and Meter Cocks, - -	8,823 02
Sales of Gas, - - - - -	444,275 19
" of Coke, - - - - -	37,981 96
" of Tar, - - - - -	11,265 60
" of Lime, - - - - -	1,939 23
" of old Materials, - - - -	1,654 39
" of Bricks and Tiles, - - -	596 63
" of Unscreened Coke, - - -	309 83
" of Bituminous Coal, - - -	162 50
" of Pipes, &c., - - - -	101 41
Rents, - - - . - -	202 08
Sales of Loan 8, - - - -	24,200 00
Five per cent. City Loan of 1854, - -	700 00
Gas consumed in the District of Moyamensing -	5,229 39
Interest on City Loans, - - - -	2,715 50
	$ 690,246 56

CR.

Payments in 1854.	
For the construction and enlargement of the Works, -	$ 78,080 92
Extension of the Street Mains, - - -	15,922 39
Service Pipes and Meters, - - -	32,526 56
Temporary Loans paid, - - - -	130,000 00
Coal and other materials used in the manufacture of Gas, wages of Workmen, &c., - -	229,418 79
Repairs of the Works, Street, Mains, &c., -	53,565 45
Incidental Expenses, - - - -	45,177 19
Salaries of Engineer, Register, and Chief Clerk, -	6,375 00
Interest on Loans, - - - -	52,716 95
Investment for Sinking Fund, - - -	10,200 00
Interest on Temporary Loans, - - -	633 34
Brokerage on Sales of Loan 8, - - -	35 00
Balance on hand, January 1st, 1855, - - -	35,594 97
	$ 690,246 56

STATE OF THE WORKS, JANUARY 1, 1855.

Assets.

Works,	$ 841,966 39
Street Mains,	542,426 36
Service Pipes and Meters,	286,979 47
Public Lamps,	11,814 02
Cash,	35,594 97
Suspended Debt,	3,862 40
Stocks belonging to the Sinking Fund,	562,781 50
Coal on hand,	97,496 70
Rosin on hand,	9,435 00
Wood on hand,	12,600 00
Coke on hand,	210 00
Due for Gas sold, delivered and on hand,	104,983 16
Due for Coke, Tar, &c.,	10,000 00
Interest on City Loans due January 1st, 1855,	1,359 50
Wharf Lot on the Schuylkill,	6,000 00
Site of the New Gas Works,	36,957 69
West Philadelphia District, due for Gas to Oct. 1, 1854,	3,128 55
City of Philadelphia, " " Dec. 1, 1854,	20,404 60
Moyamensing District, " " Oct. 1, 1854,	4,468 90
	$ 2,592,469 21

Liabilities.

Loans 1, 2, 3, 4, 5, 6, 7, and 8,	$ 1,370,000 00
Dividends unpaid,	405 00
Interest on Gas Loans including that due, January 1st, 1855,	26,654 60
For Coals, Repairs, and Materials used in the manufacture of Gas,	234,924 95
Temporary Loan,	5,000 00
Sinking Fund,	628,413 20
Contingent Fund,	317,979 67
City of Philadelphia for amount received for Gas consumed in Moyamensing District,	5,229 39
Profit and Loss, (amount of Suspended Debt,)	3,862 40
	$ 2,592,469 21

STATEMENT OF THE SINKING FUND.

1854.			
Jan'y 1,	Amount of the Sinking Fund, - - -		$ 553,304 20
	Increase of the Sinking Fund in the year 1854, - - - - - - - -		
June 30,	6 months' interest on $ 392,500 Gas Loans, at 6 per cent., - - - - -		11,775 00
	6 months' interest on $ 93,900 Gas Loans, at 5 per cent., - - - - -		2,347 50
	6 months' interest on $ 7,900 City Loans, at 6 per cent., - - - - -		237 00
	6 months' interest on $ 44,900 City Loans, at 5 per cent., - - - - -		1,122 50
	6 months' appropriation of 2 per cent. per ann. on $475,000, Loans 1, 2 and 3, - - - -	$ 4,750	
	of 3 per cent. per annum on $ 125,000, Loan 4, - -	1,875	
	of 4 per cent. per annum on $ 760,500 of Loans 5, 6, 7, and 8, - - - - -	15,210	
			21,835 00
Dec. 30,	6 months' interest on $ 402,000 Gas Loans, at 6 per cent., - - - - -		12,060 00
	6 months' interest on $ 93,900 Gas Loans at 5 per cent., - - - - -		2,347 50
	6 months' interest on $ 7,900 City Loans at 6 per cent., - - - - -		237 00
	6 months' interest on $ 44,900 City Loans at 5 per cent., - - - - -		1,122 50
	Amount carried forward,		$ 606,388 20

Amount brought forward,		$ 606,388 20
6 months' appropriation of 2 per cent. per annum on $ 475,000 Loans of 1, 2 and 3, - -	$ 4,750	
of 3 per cent. per annum on $ 125,000 of Loan 4, - -	1,875	
of 4 per cent. per annum on $ 770,000 of Loans 5, 6, 7 and 8, - - - - -	15,400	
		22,025 00
		$ 628,413 20

The amount invested is as follows:

1854.		
Jan'y 1,	Cost of Investments at this date, - -	$ 553,281 50
" 31,	Received $ 700, six per cent. City Loan, in payment for $ 700 five per cent. City Loan which become due January 1st, 1854,	
Dec. 30,	For $ 9,500 Gas Loan, No. 8, taken at par, - - - - - - -	9,500 00
	Balance not invested, - - - -	65,631 70
		$ 628,413 20

CITY AND GAS LOANS BELONGING TO THE SINKING FUND, JANUARY 1, 1855.

Five per cent. City Loans:			
Redeemable in 1855,	- -	$600	
1856,	- -	300	
1857,	- -	2,200	
1858,	- -	7,100	
1859,	- -	4,000	
1861,	- -	1,100	
1862,	- -	1,000	
1867,	- -	3,900	
1870,	- -	9,700	
1871,	- -	5,200	
1872,	- -	7,300	
1873,	- -	2,200	
1874,	- -	300	
			$44,900 00
Six per cent. City Loans:			
Redeemable in 1876,	- -	$6,600	
1881,	- -	600	
1889,	- -	700	
			7,900 00
Six per cent. Gas Loan:			
No. 1, redeemable in 1862,	- -	$10,400	
" 2, " 1863,	- -	57,300	
" 3, " 1861,	- -	32,100	
" 5, " 1868,	- -	36,100	
" 6, " 1869,	- -	14,100	
" 7, " 1870,	- -	66,100	
" 8, " 1872,	- -	185,900	
			402,000 00
Five per cent. Gas Loan No. 4, redeemable in 1866,			93,900 00
			$548,700 00
The cost of the above was	- - - - -		$562,781 50

STATEMENT OF THE PROFIT AND LOSS ACCOUNT, FOR 1854.

1854.		
Jan'y 1,	Amount due for Coal, Materials and Repairs, chargeable to the manufacture of Gas, - - - - - -	$112,245 75
Dec. 30,	Sales of Gas in 1854, - - - -	444,275 19
	" Coke, - - - - -	37,981 96
	" Tar, - - - - -	11,265 60
	" Lime, - - - - -	1,939 23
	" Old Materials, - - - -	1,654 39
	" Bricks and Tiles, - - -	596 63
	" Unscreened Coke, - - -	309 83
	" Bituminous Coal, - - -	162 50
	" Pipes, &c., - - - -	101 41
	Rents, - - - - - - - -	202 08
	Stock of Coal on hand, - - - -	97,496 70
	" Rosin, - - - - -	9,435 00
	" Wood, - - - - -	12,600 00
	" Coke, - - - - -	210 00
	Due for Coke, Lime, Tar, &c., - -	10,000 00
	" Gas delivered, - - - -	104,983 16
	Due from West Philadelphia for Gas, to Oct. 1, 1854, - - - - -	3,128 55
	Due from Moyamensing for Gas, to Oct. 1, 1854, - - - - - -	4,468 90
	Due from old City for Gas, to Dec. 1, 1854,	20,404 60
	Due for Suspended Debt, to Jan. 1, 1855,	3,862 40
		$877,323 88
Jan'y 1,	Amount of Stock on hand and Debts due to the Works at this time, - - -	$198,568 98
Dec. 30,	Payments against the manufacture of Gas, Coal, and other Materials, and Wages,	229,418 79
	Repairs, - - - - - - -	53,565 45
	Incidental Charges, - - - -	45,177 19
	Salaries of Engineer, Register, and Chief Clerk, - - - - - -	6,375 00
	Amount carried forward,	$533,105 41

Amount brought forward,	$533,105 41
Interest on Temporary Loans, - -	633 34
Brokerage on sale of Loan 8, - - -	35 00
Appropriated to Sinking Fund, as directed by Ordinance, - - - - - -	43,860 00
Interest on Loans for the year 1854, -	80,665 00
Due for Coal, Repairs, and Materials used in the manufacture of Gas, - - -	234,924 95
Suspended Debt, Jan. 1, 1854, - -	2,895 32
	$896,119 02

The balance of this account, being $18,795 14, is the amount of the loss sustained by the Works during the present year, 1854, in carrying on the business at the prices now charged for Gas. The amount of this loss, and the increase on the suspended debt, have been charged against the Contingent Fund, the total of such charge being $19,762 22. The loss here referred to is the deficiency of the sum required to complete the appropriation for the year to the Sinking Fund. Exclusive of the interest on Loans, and the appropriation to the Sinking Fund, the profits were $105,729 86. The interest on the Loans was $80,665, and there was therefore left for the Sinking Fund the sum of $25,064 86, instead of $43,860, as required by ordinances.

STATEMENT OF THE CONTINGENT FUND FOR 1854.

Amount of the Fund, January 1st, 1854, - - -		$337,741 89
Decrease during the year, as per Profit and Loss Account, - - - - - - -	$18,795 14	
And by difference in amount of Suspended Debt, - - - - - - -	967 08	
		19,762 22
		$317,979 67

The amount raised under various Ordinances, for the construction and enlargement of the Works, and for extraordinary repairs and renewals, and for working capital, has been, to Jan. 1st, 1855:

Loans 1, 2, 3, 4, 5, 6, 7 and 8, - - -	1,370,000 00
Contingent Fund, derived from profits, - -	317,979 67
	$1,687,979 67

The amount expended has been:

Construction of Works, - - - - - -	$841,966 39
Street Mains, - - - - - - -	542,426 36
Service Pipes and Meters, - - - - -	286,979 47
Public Lamps, - - - - - - -	11,814 02
Wharf Lot on the Schuylkill, - - -	6,000 00
Site of the new Gas Works, - - - - -	36,957 69
	$1,726,143 93

The Liabilities of the Works, Jan. 1, 1855, are as follows:

Construction of Works, Street Mains, Service Pipes, and Meters, - - - - - -	59,518 19
Coals, Repairs, and Materials used in the manufacture of Gas, - - - - - - -	234,924 95
	$294,443 14

1854 ENGINEER'S ACCOUNTS. 1854

WORKS.	Dolls.	C.
Wages of laborers and fitters employed in erecting new works,	16,893	35
Castings,	19,686	61
Gas-holder No. 12,	6,000	00
Mason work,	4,529	03
Stone,	4,460	07
Fire brick and Tile,	3,565	53
Lumber,	3,149	82
Bricks,	2,328	67
Carting,	2,217	49
Slating,	2,087	25
Bricklaying,	2,054	18
Station meter,	1,300	00
Iron,	1,120	08
Valves,	988	84
Tubing,	788	27
Tin work,	642	42
Measuring stone,	592	84
Lead pipe, wire, and sheet lead,	590	10
Machine work,	493	53
Boiler,	420	00
Lime,	410	70
Plastering and cement work,	393	10
Hose,	392	10
Bolts and nuts,	328	93
Gas-holder screws,	312	50
Oil,	199	02
Chain,	192	80
Farming implements and labor,	191	50
Cottar bars,	172	50
Patent Punch,	160	00
Nails,	153	30
Fire-plugs,	153	00
Pumps,	135	00
Cement,	112	50
Sash,	108	50
Ship Chandlery,	103	22
Smithwork,	100	00
Sand,	85	85
Wagon,	60	00
Hardware,	57	45
Circular sawing-machine,	55	00
Blocks,	53	20
Leather,	41	52
Towing,	38	00
Shears,	35	00
Trunk boards,	33	77
Wood-barrows,	33	75
Stopcocks,	24	13
Iron borings,	15	00
Stocks,	14	00
Powder,	7	50
Total,	78,080	92

STREET MAINS.	Dolls.	C.
Wages of men employed in laying mains in streets,	1,406	08
Pipes and castings,	12,168	97
Lead,	1,020	56
Paving,	597	00
Valves,	520	00
Carting,	143	36
Ship chandlery,	66	42
Total,	15,922	39

SERVICES.	Dolls.	C.
Wages of men engaged in laying pipes and setting and fitting up meters,	9,562	42
Meters,	12,297	17
Stop cocks,	4,517	83
Tubing,	2,432	17
Blankets,	1,204	13
Paving,	1,278	83
Lumber,	602	04
Lead pipe,	210	17
Lamp cocks & fittings,	200	00
Hardware and nails,	112	23
Tin and copper,	73	75
Chemicals,	35	82
Total,	32,526	56

1854 ENGINEER'S ACCOUNTS. 1854

GAS.	Dolls.	C.
Wages of stokers, &c., employed in retort houses and purifying houses, manufacturing gas and wheeling coke, coals, &c.	53,331	21
Coals,	115,704	04
Freight on coals,	20,433	62
Rosin,	16,421	53
Wood,	12,808	23
Carting and Towing,	7,819	16
Oyster shells,	2,801	00
Insurance,	100	00
Total,	229,418	79

REPAIRS.	Dolls.	C.
Wages of carpenters, blacksmiths, bricklayers, fitters and laborers engaged in repairs of works, street mains and services,	22,049	53
Castings,	16,512	24
Fire brick & clay,	3,473	05
Meters,	2,888	69
Lumber,	1,614	29
Iron,	1,457	72
Oil and paints,	865	59
Hardware & nails,	422	74
Tubing,	420	65
Bricklaying,	350	19
Machinist work,	272	02
Flagging and coping stone,	260	37
Ship Chandlery,	258	79
Carriage,	200	00
Dredging,	197	02
Carting,	188	22
Blankets,	177	25
Wagon,	165	00
Plumbing,	140	10
Furnace,	137	89
Birch brooms,	119	15
Saddlery,	117	74
Wheelwight work	105	47
Shovels,	99	50
Iron railing,	96	36
Tin work,	95	44
Bricks,	83	40
Sand and mica,	62	50
Galvanizing pipe,	54	21
Trowels,	52	00
Iron borings,	52	56
Hammer, file, and axe handles,	49	30
India rubber goods	47	97
Tin and copper,	47	49
Sheet lead,	37	10
Buckets,	21	25
Iron & brass cocks	80	50
Repairing furnace	20	16
Repairing pumps,	65	12
Cotton waste,	19	78
Repairing scales,	19	75
Tallow,	15	87
Trunk boards,	16	72
Leather,	15	19
Belting,	13	05
Adjusting instruments,	10	00
Sundries,	96	52
Total,	53,565	45

INCIDENTALS.	Dolls.	C.
Wages of clerks, men employed in the inspection of fittings and meters, and taking statements for bills, storing coals and coke at works, measuring coke, tar, &c.	31,248	54
Rents,	4,559	10
Taxes and water,	2,760	91
Carting,	772	45
Sundries for board	486	93
Horse feed,	468	26
Printing, stationery & engraving,	475	78
Blankets,	256	95
Barrels,	255	79
Castings,	145	55
Wood and coal,	141	06
Horses exchanged	140	00
Carpets,	138	91
Subscription and advertising,	120	00
Alcohol,	99	09
Reports lighting,	98	00
Hardware,	86	09
Muslin,	82	92
Printing-press,	75	75
Gas burners,	73	00
Smithwork,	67	86
Tin and wire work	62	97
Threshing grain,	56	27
Chemicals,	53	70
Pressure register, and meter cards,	42	50
Birch brooms,	41	49
Insurance,	39	15
Farming implements,	38	50
Stone,	38	32
Paint and painting	38	08
Turning & bungs,	36	38
Plumbing,	36	04
Expenses to Pitts,	35	00
Professional services,	31	50
Saddlery,	30	25
Gas fittings,	30	00
Ship Chandlery,	24	12
Thermometers,	16	12
Meter,	15	36
Gardening,	13	97
Miscellaneous expenses of offices, postage, &c.,	444	53
Total,	43,677	19

CITY REGISTRY.

DATE.	APPLICATIONS.	REMOVALS. DISCONTINUANCES.	PRIVATE LIGHTS.		PUBLIC LIGHTS.		
1854.			Added.	Total.	Streets.	Market Houses.	Squares.
To Jan. 1st, . .	26,754	13,765	25,432	182,602	1,793	50	85
January, ...	185	123	1,969	184,571	5		
February, . . .	153	85	1,398	185,969			
March, ...	246	150	1,384	187,353	3		
April, ...	270	168	1,608	188,961	8		
May, ...	275	158	1,670	190,631	4		
June, ...	250	163	1,362	191,993	6		
July, ...	206	142	1,199	193,192			
August, ...	261	181	1,326	194,518	1		
September, . .	337	224	1,889	196,407			
October, ...	276	236	1,538	197,945			
November, . . .	244	199	1,568	199,513			
December, . . .	181	140	1,216	200,729			
Total, ...	2,884	1,969	18,127		27		
Brought down,	26,754	13,765			1,793	50	85
Grand total, . .	29,638	15,734	18,127	200,729	1,820	50	85

REGISTRY OF THE DISTRICTS.

	PRIVATE LIGHTS.	PUBLIC LIGHTS.	MARKET HOUSES.
Southwark, ...	9,545	227	20
Moyamensing, ...	4,844	170	8
West Philadelphia, . . .	5,180	311	
Frankford, ...	750	46	
Totals, ...	20,319	754	28

DATE.	SERVICES LAID'	METERS SET.									PUBLIC LAMPS.		
1854.		3 light.	5 light.	10 light.	20 light.	30 light.	45 light.	60 light.	100 light.	150 light	On Posts.	On Wall.	Market Houses.
To Jan'y 1st.	13,074	6553	3804	2012	481	115	53	20	35	1	1554	240	50
January,	69	44	8	9	6	1	1				5		
February,	52	21	7	10	7	6	1						
March,	118	71	21	12	8	3	3				3		
April,	107	50	27	16	10	3	1				7	1	
May,	115	56	32	15	4	4	4				4		
June,	90	46	24	12	8						6		
July,	59	30	14	11	3		1						
August,	84	45	16	9	9	4	1				1		
Septem'r,	113	63	21	14	9	5		1					
October,	49	16	14	10	7	1		1					
November,	38	9	12	6	10	1							
December,	45	19	11	3	8	1	2		1				
Total,	939	470	207	127	89	29	14	2	1		26	1	
Bt. down,	13,074	6553	3804	2012	481	115	53	20	35	1	1554	240	50
Gd. total,	14,013	7023	4011	2139	570	144	67	22	36	1	1580	241	

DATE.	MAIN PIPE LAID IN STREETS, LINEAL FEET.										
1854.	1½ inch.	2 inch.	3 inch.	4 inch.	6 inch.	8 inch.	10 inch.	12 inch.	16 inch.	20 inch.	Total.
To Jan'y 1st.	426	114,189	239,116	153,844	39,217	26,865	14,324	13,500	11,133	14,619	627,233
Jan'y,											
Feb'y,											
March,		264	396	243							903
April,		318		36							354
May,			63	486							549
June,			171								171
July,											
August,											
Sept'r,			162								162
October,											
Novem'r,			189								189
Decem'r,		96	45	63							204
Total,		678	1,026	828							2,532
Bt. down,	426	114,189	239,116	153,844	39,217	26,865	14,324	13,500	11,133	14,619	627,233
Gr. total,	426	114,867	240,142	154,672	39,217	26,865	14,324	13,500	11,133	14,619	629,765

REPAIRS OF SERVICES.

1854.	STOP-COCKS RENEWED.	NEW COVERS FOR STOP-COCK BOXES.	SERVICES REMOVED.	NEW STOP-COCK BOXES.
January, ...	19		6	
February, ...	18	2	1	2
March, ...	25	3	5	4
April, ...	15	14	4	1
May, ...	23	68	4	63
June, ...	20	55	7	56
July, ...	11	80	3	86
August, ...	11	58	10	58
September, . . .	22		5	
October, ...	19	4	5	4
November, . . .	30		10	
December, . . .	18		6	
Total, . . .	231	284	66	274

STATEMENT OF GAS PAID FOR IN EACH MONTH OF THE YEAR, being the amount of bills as per Meters to the first day of the month.

1854.	FEET OF GAS CONSUMED AT PRIVATE HOUSES.	PUBLIC LAMPS.	DISTRICTS.			TOTAL.
			SOUTH-WARK.	MOYA-MENSING.	WEST PHILA.	
January, .	29,745,600		4,465,800	2,113,400	1,183,900	37,508,700
February, .	24,766,300					24,766,300
March, . .	18,996,300	12,071,250				31,067,550
April, . . .	25,496,100		4,258,300	2,126,400	1,421,600	33,302,400
May, . . .	17,700,500					17,700,500
June, . . .	16,826,600	8,416,500				25,243,100
July, . . .	11,795,300		2,949,500	1,613,000	1,129,100	17,486,900
August, . .	9,363,200					9,363,200
September,	10,110,700	8,360,700				18,471,400
October, . .	9,997,900		2,658,900	1,564,600	956,600	15,178,000
November,	15,653,600					15,653,600
December,	20,906,800	10,792,474				31,699,274
	211,358,900	39,640,924	14,332,500	7,417,400	4,691,200	277,440,924

Inventory of Stock of Gas delivered and on hand:—	*Feet.*	
January 1st, 1855, . . .	61,754,800	
January 1st, 1854, . . .	59,248,550	
		2,506,250
		279,947,174

ANNUAL REGISTRY OF CONSUMERS AND PRIVATE AND PUBLIC LIGHTS.

DATE.	APPLICATIONS.	REMOVALS AND DISCONTINUANCES.	TOTAL NUMBER OF CONSUMERS.	PRIVATE LIGHTS.		PUBLIC LIGHTS.			
To Dec. 31st.				Added.	Total.	Streets.	Market Houses.	Squares.	Total.
1836,	301	24	277	2952	2952	165			165
1837,	497	108	666	3862	6814	136			301
1838,	849	174	1341	4288	11102	133		62	496
1839,	946	300	1987	5380	16482	162	18		676
1840,	788	382	2393	3317	19799	112	1		789
1841,	874	493	2774	4387	24186	13	8		810
1842,	845	541	3078	3054	27240	30			840
1843,	986	635	3429	3418	30658	59			899
1844,	1000	503	3926	4940	35598	195			1094
1845,	1147	629	4444	5754	41352	112			1206
1846,	1465	717	5192	8138	49490	96			1302
1747,	1869	887	6174	12987	62477	84	10		1396
1848,	1956	1002	7128	13935	76412	21			1417
1849,	2191	1180	8139	18050	94462	74			1491
1850,	2227	1150	9216	20542	115004	72	13		1576
1851,	2529	1339	10406	21616	136620	124			1700
1852,	3004	1747	11663	20550	157170	118			1818
1853,	3280	1954	12989	25432	182602	87		23	1928
1854,	2884	1969	13904	18127	200729	27			1955
	29638	15734		200729		1820	50	85	

STATEMENT OF METERS SET EACH YEAR.

DATE.		METERS SET.								
To Dec. 31st.	SERVICES LAID.	3 light.	5 light.	10 light.	20 light.	30 light.	45 light.	60 light.	100 light.	150 light.
1836,	251	108	98	31	9	2	3			
1837,	411	301	77	19	6	2	3		3	
1838,	690	442	159	61	13	9	2	1	3	
1839,	649	421	118	75	26	6	3			
1840,	350	198	78	54	13	3	2		2	
1841,	375	203	93	63	14	2				
1842,	299	157	76	57	6	3				
1843,	348	180	110	50	7	1				
1844,	503	292	129	72	5	3	1		1	
1845,	523	311	151	49	7	4		1		
1846,	761	390	237	113	14	4	2	1		
1847,	999	481	300	202	12	1	3			
1848,	971	408	333	196	25	4	3	1	1	
1849,	1029	366	366	234	46	7	5	2	3	
1850,	1079	435	412	165	50	8	3	3	3	
1851,	1211	534	373	204	76	15	4	2	3	
1852,	1261	638	334	200	60	18	7	3	1	
1853,	1364	688	360	167	92	23	12	6	15	1
1854,	939	470	207	127	89	29	14	2	1	
	14013	7023	4011	2139	570	144	67	22	36	1

LENGTH OF MAINS LAID IN STREETS EACH YEAR, IN LINEAL FEET.

DATE.	1½ inch.	2 inch.	3 inch.	4 inch.	6 inch.	8 inch.	10 inch.	12 inch.	16 inch.	20 inch.	TOTAL.
1836,		2310	15951	10184	4018		9140				41603
1837,		3468	13068	4302	6984						27822
1838,		150	15660	14409	9036		27	10881	2340		52503
1839,		1704	11629	11997	4419	3726					33475
1840,		222	1674	576	261						2733
1841,		204	8874	7137	27						16242
1842,		324	6831	3483	360	774					11772
1843,		966	32796	16767	1395	1053					52977
1844,		30696	38655	23555	2358	3663	891				99818
1845,	426	3240	9360	4725	837						18588
1846,		10734	9855	8442	378	2070					31479
1847,		4164	6660	2808	900	135					14667
1848,		1734	7578	3897	1458	477					15144
1849,		9690	9117	5724	2934	13284	4266	2619	8073	495	56202
1850,		6666	9513	6345	2718						25242
1851,		11901	18441	10755	720	324					42141
1852,		18864	19710	14958		1359				6867	61758
1853,		7152	3744	3780	414				720	7257	23067
1854,		678	1026	828							2532
	426	114867	240142	154672	39217	26865	14324	13500	11133	14619	629765

STATEMENT OF GAS DELIVERED TO PUBLIC AND PRIVATE LIGHTS TO DECEMBER 31st IN EACH YEAR.

YEAR.	PUBLIC LIGHTS.	PRIVATE LIGHTS.	SPRING GARDEN.	SOUTH-WARK.	MOYA-MENSING.	WEST PHILA.	Used at Offices, Shops, and Works, & loss by leakage, &c.	MADE AT WORKS.
1836,	978812	4752740					749748	6481300
1837,	1397687	14454891					1226122	17078700
1838,	3013546	22366004					1977450	27357000
1839,	6280654	30658145					2534201	39473000
1840,	8028818	34874380					2506802	45410000
1841,	10208180	39648000					1415820	51272000
1842,	13292000	36596830					922170	50811000
1843,	12985851	34579900					1324249	48890000
1844,	13608356	40022800					1152844	54784000
1845,	17373798	46702800					926402	65003000
1846,	19164106	55219800	163400				906694	75454000
1847,	19122293	68071600	2507100				1846007	91547000
1848,	19924700	78921350	6817000				1109950	106773000
1849,	24524950	96247100	10713200	2322800	195800		1505150	135509000
1850,	28482800	131258400	17650600	3457800	417900		748500	182016000
1851,	36524625	145114200	7039800	5279000	1254700		5629675	200842000
1852,	38306250	162093100		5927900	2892400	354600	6641750	216216000
1853,	37406625	191679750		10458200	5810700	2765720	1306005	249427000
1854,	40177874	209334300		14989200	8304000	6501800	2916826	282224000
								1946568000

A COMPLETE LIST

OF THE

TRUSTEES OF THE PHILADELPHIA GAS WORKS,

FROM THE COMMENCEMENT,

IN THE ORDER OF THEIR APPOINTMENT.

Elections by Select Council, March 26th, 1835.

Benjamin W. Richards, John R. Latimer,	for one year.
A. D. Bache, W. H. Keating,	for two years.
J. P. Wetherill, H. M. Zollickoffer,	for three years.

Elections by Common Council.

John Farr, R. M. Huston,	for one year.
Frederick Fraley, Ephraim Haines,	for two years.
M. W. Baldwin, Thomas Cave,	for three years.

B. W. Richards, President.
Samuel V. Merrick, Engineer.
Benjamin Matthias, Secretary.

B. W. Richards resigned the Presidency June 20th, 1835.

Dr. R. M. Huston elected President July 10th, 1835.

Dr. J. K. Mitchell elected July 9th, 1835, in place of B. W. Richards, resigned.

John Siter elected January 28th, 1836, in place of J. K. Mitchell, resigned.

Benjamin Matthias, Secretary, resigned March, 1836.

Frederick Brown elected January 19th, 1837, in place of A. D. Bache.

Samuel V. Merrick, Engineer, resigned February, 1837.

Alexander Ferguson elected November 23d, 1837, in place of Ephraim Haines, deceased.

John Wiegand elected April 12th, 1838, in place of H. M. Zollikoffer, resigned.

A. D. Bache elected September 27th, 1838, in place of John Siter, resigned.

George Handy elected January 30th, 1839, in place of J. R. Latimer, resigned.

Thomas Cave elected President in place of Dr. R. M. Huston, resigned, June 28th, 1839.

Charles Gilpin elected January 14th, 1841, in place of W. H. Keating, deceased.

Thomas S. Smith elected January 28th, 1841, in place of M. W. Baldwin.

G. H. Burgin elected January 20th, 1842, in place of George Handy.

Isaac Myer elected January 20th, 1842, in place of R. M. Huston.

Samuel Norris elected January 19th, 1843, in place of Alexander Ferguson.

Isaac Barton elected January 18th, 1844, in place of Thomas S. Smith.

John C. Davis elected November 7th, 1844, in place of A. D. Bache, resigned.

Frederick Fraley elected President in place of Thomas Cave, deceased, March 28th, 1845.

Joseph S. Lovering elected April 10th, 1845, in place of Thomas Cave, deceased.

John Trucks elected June 19th, 1845, in place of Charles Gilpin, resigned.

Jacob E. Hagert elected January 29th, 1846, in place of Frederick Brown.

Frederick Brown elected March 25th, 1847, in place of John Farr, deceased.

M. W. Baldwin elected October 28th, 1847, in place of John Trucks, resigned.

John Agnew elected December 23d, 1847, in place of J. E. Hagert, resigned.

William Morris elected January 20th, 1848, in place of J. C. Davis.

John F. Gilpin elected January 20th, 1848, in place of G. H. Burgin.

G. H. Burgin elected April 6th, 1848, in place of J. S. Lovering, resigned.

John C. Davis elected April 13th, 1848, in place of W. Morris, resigned.

James Traquair elected January 18th, 1849, in place of Frederick Brown, resigned.

John Lindsay elected December 20th, 1849, in place of J. P. Wetherill, resigned.

Lewis Cooper elected December 20th, 1849, in place of J. C. Davis, resigned.

B. M. Feltwell elected January 31st, 1850, in place of Isaac Barton, resigned.

E. Y. Farquhar elected March 15th, 1850, in place of J. Lindsay, resigned.

John C. Davis elected October 24th, 1850, in place of E. Y. Farquhar, resigned.

Charles Lennig elected October 24th, 1850, in place of John Agnew, resigned.

Benjamin Gerhard elected January 30th, 1851, in place of Isaac Myer, resigned.

E. A. Souder elected January 29th, 1852, in place of M. W. Baldwin, resigned.

Samuel R. Brick elected January 25th, 1855, in place of E. A. Souder.

Wm. J. P. White elected January 25th, 1855, in place of Charles Lennig.

John Manuel elected January 25th, 1855, in place of Samuel Norris.

Wm. G. Flanagan elected January 25th, 1855, in place of Frederick Fraley.

BOARD OF TRUSTEES, 1855.

JOHN WEIGAND, President.
DR. GEORGE H. BURGIN,
JOHN F. GILPIN,
JOHN C. DAVIS,
JAMES TRAQUAIR,
LEWIS COOPER,
BENJAMIN M. FELTWELL,
BENJAMIN GERHARD,
SAMUEL R. BRICK,
WILLIAM J. P. WHITE,
JOHN MANUEL,
WILLIAM G. FLANAGAN.

Engineer,
JOHN C. CRESSON,
Appointed Aug. 26th, 1836.

Register,
WILLIAM FENNELL,
Appointed March 31st, 1336.

STANDING COMMITTEES.

On Works.

GEORGE H. BURGIN, Chairman.
JOHN C. DAVIS,
JAMES TRAQUAIR,
LEWIS COOPER,
BENJAMIN M. FELTWELL,
SAMUEL R. BRICK,
WM. G. FLANAGAN.

On Distribution.

JOHN F. GILPIN, Chairman.
GEORGE H. BURGIN,
BENJ. M. FELTWELL,
BENJ. GERHARD,
WM. J. P. WHITE,
WM. G. FLANAGAN,
JOHN MANUEL.

On Finances.

LEWIS COOPER, Chairman.
JOHN C. DAVIS,
JOHN F. GILPIN,
JAMES TRAQUAIR,
BENJAMIN GERHARD,
SAMUEL R. BRICK,
JOHN MANUEL.